

SEQUENCE LISTING

<110> OTA, TOSHIO
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<120> GROWTH AND DIFFERENTIATION FACTOR

<130> 084335/0153

<140> 10/030,225

<141> 2002-01-08

<150> JP 11/194179

<151> 1999-07-08

<150> 60/159,586

<151> 1999-10-18

<160> 14

<170> PatentIn Ver. 2.1

<210> 1

<211> 2981

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (58)..(1770)

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Met Arg Ala Leu Arg Asp Arg Ala Gly Leu Leu Leu Cys Val Leu Leu
1 5 10 15

ctg gcg gcg ctg ctg gag gcg gcg cta ggg ctc ccc gtg aag aag ccg 153
Leu Ala Ala Leu Leu Glu Ala Ala Leu Gly Leu Pro Val Lys Lys Pro
20 25 30

cgg ctc cgc gga cca cgg cct ggg agc ctc acg agg ctc gca gag gtc 201
Arg Leu Arg Gly Pro Arg Pro Gly Ser Leu Thr Arg Leu Ala Glu Val
35 40 45

tca gcc tcc cca gat cct agg cct ctg aag gaa gag gag gag gca cca 249
Ser Ala Ser Pro Asp Pro Arg Pro Leu Lys Glu Glu Glu Glu Ala Pro
50 55 60

ctg ctc ccc aga acc cac ctg cag gca gag cca cac caa cat gga tgc 297
Leu Leu Pro Arg Thr His Leu Gln Ala Glu Pro His Gln His Gly Cys
65 70 75 80

tgg act gtc act gag cca gca gcc atg acc cca ggc aac acc acc cct	345
Trp Thr Val Thr Glu Pro Ala Ala Met Thr Pro Gly Asn Thr Thr Pro	
85 90 95	
ccc agg acc cca gag gtt act ccg ttg cgg ctg gag ctg cag aag ctg	393
Pro Arg Thr Pro Glu Val Thr Pro Leu Arg Leu Glu Leu Gln Lys Leu	
100 105 110	
ccg gga ttg gcc agc aca acc ttg agt acc cct aac cct gat acc cag	441
Pro Gly Leu Ala Ser Thr Thr Leu Ser Thr Pro Asn Pro Asp Thr Gln	
115 120 125	
gct tca gcc tcc cca gat cct agg cct ctg agg gaa gag gag gag gca	489
Ala Ser Ala Ser Pro Asp Pro Arg Pro Leu Arg Glu Glu Glu Glu Ala	
130 135 140	
cga ctg ctc ccc aga acc cac ctg cag gca gag cta cac caa cat gga	537
Arg Leu Leu Pro Arg Thr His Leu Gln Ala Glu Leu His Gln His Gly	
145 150 155 160	
tgt tgg act gtc act gag cca gca gcc ctg acc cca ggg aat gcc acg	585
Cys Trp Thr Val Thr Glu Pro Ala Ala Leu Thr Pro Gly Asn Ala Thr	
165 170 175	
cct ccc agg acc cag gag gtt act ccc ttg ctg ctg gag ctg cag aag	633
Pro Pro Arg Thr Gln Glu Val Thr Pro Leu Leu Leu Glu Leu Gln Lys	
180 185 190	
ctg cca gaa ttg gtc cac gca acc ttg agt acc cct aac cct gat aac	681
Leu Pro Glu Leu Val His Ala Thr Leu Ser Thr Pro Asn Pro Asp Asn	
195 200 205	
cag gtg acc atc aag gtg gtg gag gac ccc cag gcc gag gtg tcg ata	729
Gln Val Thr Ile Lys Val Val Glu Asp Pro Gln Ala Glu Val Ser Ile	
210 215 220	
gac ctg ttg gct gag ccc agc aat ccc ccg ccc cag gat acc ctt agc	777
Asp Leu Leu Ala Glu Pro Ser Asn Pro Pro Pro Gln Asp Thr Leu Ser	
225 230 235 240	
tgg ctg ccc gcc ctc tgg ccc ttc ctc tgg gga gac tac aaa gga gag	825
Trp Leu Pro Ala Leu Trp Pro Phe Leu Trp Gly Asp Tyr Lys Gly Glu	
245 250 255	
gaa aaa gac agg gcc cca ggg gag aag ggg gag gaa aag gag gaa gac	873
Glu Lys Asp Arg Ala Pro Gly Glu Lys Gly Glu Glu Lys Glu Glu Asp	
260 265 270	
gag gac tat cct tca gag gat atc gag ggt gag gat caa gag gac aaa	921
Glu Asp Tyr Pro Ser Glu Asp Ile Glu Gly Glu Asp Gln Glu Asp Lys	
275 280 285	
gag gaa gat gag gaa gag cag gcg ctc tgg ttc aat gga act aca gac	969
Glu Glu Asp Glu Glu Glu Gln Ala Leu Trp Phe Asn Gly Thr Thr Asp	
290 295 300	

aac tgg gac cag ggc tgg ctg gcc ccc ggg gat tgg gtc ttc aag gat	1017
Asn Trp Asp Gln Gly Trp Leu Ala Pro Gly Asp Trp Val Phe Lys Asp	
305 310 315 320	
tct gtc agc tac gac tat gag cct cag aag gag tgg agt ccc tgg tct	1065
Ser Val Ser Tyr Asp Tyr Glu Pro Gln Lys Glu Trp Ser Pro Trp Ser	
325 330 335	
ccc tgc agt ggg aac tgc agc act ggc aag cag cag agg act cgg ccc	1113
Pro Cys Ser Gly Asn Cys Ser Thr Gly Lys Gln Gln Arg Thr Arg Pro	
340 345 350	
tgt ggc tat ggc tgc act gcc acc gag acc cgt acc tgt gac ctg ccc	1161
Cys Gly Tyr Gly Cys Thr Ala Thr Glu Thr Arg Thr Cys Asp Leu Pro	
355 360 365	
tcc tgt cct ggc act gag gac aag gac acc ttg ggc ctc ccc agt gag	1209
Ser Cys Pro Gly Thr Glu Asp Lys Asp Thr Leu Gly Leu Pro Ser Glu	
370 375 380	
gag tgg aag ctc ctg gcc cgc aat gct acg gac atg cat gat caa gat	1257
Glu Trp Lys Leu Leu Ala Arg Asn Ala Thr Asp Met His Asp Gln Asp	
385 390 395 400	
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Val Asp Ser Cys Glu Lys Trp Leu Asn Cys Lys Ser Asp Phe Leu Ile	
405 410 415	
aag tat ctg agc cag atg ctg cgg gac ctg ccc agc tgc ccg tgt gcc	1353
Lys Tyr Leu Ser Gln Met Leu Arg Asp Leu Pro Ser Cys Pro Cys Ala	
420 425 430	
tac cca ctg gag gcc atg gac agc cct gtg agc cta cag gac gag cac	1401
Tyr Pro Leu Glu Ala Met Asp Ser Pro Val Ser Leu Gln Asp Glu His	
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cag ggc cgc agc ttc cgg tgg agg gat gcc agt ggc cct cgc gag cgc	1449
Gln Gly Arg Ser Phe Arg Trp Arg Asp Ala Ser Gly Pro Arg Glu Arg	
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Leu Asp Ile Tyr Gln Pro Thr Ala Arg Phe Cys Leu Arg Ser Met Leu	
465 470 475 480	
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Ser Gly Glu Ser Ser Thr Leu Ala Ala Gln His Cys Cys Tyr Asp Glu	
485 490 495	
gac agc cgg ctg ctg acc cgt ggc aag ggc gcc ggc atg ccc aac ctc	1593
Asp Ser Arg Leu Leu Thr Arg Gly Lys Gly Ala Gly Met Pro Asn Leu	
500 505 510	
atc agc acc gac ttc tca cct aag ctg cac ttc aag ttc gac acg acg	1641
Ile Ser Thr Asp Phe Ser Pro Lys Leu His Phe Lys Phe Asp Thr Thr	
515 520 525	

ccc tgg atc ctg tgc aag ggg gac tgg agc cgc ctc cac gct gtg ctc 1689
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 Pro Pro Asn Asn Gly Arg Ala Cys Thr Asp Asn Pro Leu Glu Glu Glu
 545 550 555 560

tac cta gca cag ttg cag gag gcc aag gag tac tagtgacggg gttgctgaac 1790
 Tyr Leu Ala Gln Leu Gln Glu Ala Lys Glu Tyr
 565 570

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<211> 571

<212> PRT

<213> Homo sapiens

<400> 2

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			20					25					30		
Arg	Leu	Arg	Gly	Pro	Arg	Pro	Gly	Ser	Leu	Thr	Arg	Leu	Ala	Glu	Val
			35				40					45			
Ser	Ala	Ser	Pro	Asp	Pro	Arg	Pro	Leu	Lys	Glu	Glu	Glu	Glu	Ala	Pro
	50					55				60					
Leu	Leu	Pro	Arg	Thr	His	Leu	Gln	Ala	Glu	Pro	His	Gln	His	Gly	Cys
65					70					75					80
Trp	Thr	Val	Thr	Glu	Pro	Ala	Ala	Met	Thr	Pro	Gly	Asn	Thr	Thr	Pro
				85					90					95	
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			100					105					110		
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Ala	Ser	Ala	Ser	Pro	Asp	Pro	Arg	Pro	Leu	Arg	Glu	Glu	Glu	Glu	Ala
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145					150					155					160
Cys	Trp	Thr	Val	Thr	Glu	Pro	Ala	Ala	Leu	Thr	Pro	Gly	Asn	Ala	Thr
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Pro	Pro	Arg	Thr	Gln	Glu	Val	Thr	Pro	Leu	Leu	Leu	Glu	Leu	Gln	Lys
			180					185					190		
Leu	Pro	Glu	Leu	Val	His	Ala	Thr	Leu	Ser	Thr	Pro	Asn	Pro	Asp	Asn
		195					200					205			
Gln	Val	Thr	Ile	Lys	Val	Val	Glu	Asp	Pro	Gln	Ala	Glu	Val	Ser	Ile
		210				215					220				
Asp	Leu	Leu	Ala	Glu	Pro	Ser	Asn	Pro	Pro	Pro	Gln	Asp	Thr	Leu	Ser
225					230					235				240	
Trp	Leu	Pro	Ala	Leu	Trp	Pro	Phe	Leu	Trp	Gly	Asp	Tyr	Lys	Gly	Glu
			245						250					255	
Glu	Lys	Asp	Arg	Ala	Pro	Gly	Glu	Lys	Gly	Glu	Glu	Lys	Glu	Glu	Asp
			260					265					270		
Glu	Asp	Tyr	Pro	Ser	Glu	Asp	Ile	Glu	Gly	Glu	Asp	Gln	Glu	Asp	Lys
		275					280					285			
Glu	Glu	Asp	Glu	Glu	Glu	Gln	Ala	Leu	Trp	Phe	Asn	Gly	Thr	Thr	Asp
		290				295					300				

Asn Trp Asp Gln Gly Trp Leu Ala Pro Gly Asp Trp Val Phe Lys Asp
 305 310 315 320
 Ser Val Ser Tyr Asp Tyr Glu Pro Gln Lys Glu Trp Ser Pro Trp Ser
 325 330 335
 Pro Cys Ser Gly Asn Cys Ser Thr Gly Lys Gln Gln Arg Thr Arg Pro
 340 345 350
 Cys Gly Tyr Gly Cys Thr Ala Thr Glu Thr Arg Thr Cys Asp Leu Pro
 355 360 365
 Ser Cys Pro Gly Thr Glu Asp Lys Asp Thr Leu Gly Leu Pro Ser Glu
 370 375 380
 Glu Trp Lys Leu Leu Ala Arg Asn Ala Thr Asp Met His Asp Gln Asp
 385 390 395 400
 Val Asp Ser Cys Glu Lys Trp Leu Asn Cys Lys Ser Asp Phe Leu Ile
 405 410 415
 Lys Tyr Leu Ser Gln Met Leu Arg Asp Leu Pro Ser Cys Pro Cys Ala
 420 425 430
 Tyr Pro Leu Glu Ala Met Asp Ser Pro Val Ser Leu Gln Asp Glu His
 435 440 445
 Gln Gly Arg Ser Phe Arg Trp Arg Asp Ala Ser Gly Pro Arg Glu Arg
 450 455 460
 Leu Asp Ile Tyr Gln Pro Thr Ala Arg Phe Cys Leu Arg Ser Met Leu
 465 470 475 480
 Ser Gly Glu Ser Ser Thr Leu Ala Ala Gln His Cys Cys Tyr Asp Glu
 485 490 495
 Asp Ser Arg Leu Leu Thr Arg Gly Lys Gly Ala Gly Met Pro Asn Leu
 500 505 510
 Ile Ser Thr Asp Phe Ser Pro Lys Leu His Phe Lys Phe Asp Thr Thr
 515 520 525
 Pro Trp Ile Leu Cys Lys Gly Asp Trp Ser Arg Leu His Ala Val Leu
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 Pro Pro Asn Asn Gly Arg Ala Cys Thr Asp Asn Pro Leu Glu Glu Glu
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<210> 3

<211> 30

<212> RNA

<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Oligo-cap Linker

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 <210> 4
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Primer Sequence

 <400> 4
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 <210> 5
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Primer Sequence

 <400> 5
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 <210> 6
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Primer Sequence

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 <210> 7
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Primer Sequence

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<210> 8
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Primer Sequence

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<210> 9
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 <212> DNA
 <213> Artificial Sequence

<220>
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 Synthesized Primer Sequence

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<210> 10
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Artificially
 Synthesized Primer Sequence

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32

<210> 11
 <211> 215
 <212> PRT
 <213> Homo sapiens

<400> 11
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 35 40 45
 Gln Cys Pro Glu Val His Pro Leu Pro Thr Pro Val Leu Leu Pro Ala
 50 55 60

Val Asp Phe Ser Leu Gly Glu Trp Lys Thr Gln Met Glu Glu Thr Lys
 65 70 75 80
 Ala Gln Asp Ile Leu Gly Ala Val Thr Leu Leu Leu Glu Gly Val Met
 85 90 95
 Ala Ala Arg Gly Gln Leu Gly Pro Thr Cys Leu Ser Ser Leu Leu Gly
 100 105 110
 Gln Leu Ser Gly Gln Val Arg Leu Leu Leu Gly Ala Leu Gln Ser Leu
 115 120 125
 Leu Gly Thr Gln Leu Pro Pro Gln Gly Arg Thr Thr Ala His Lys Asp
 130 135 140
 Pro Asn Ala Ile Phe Leu Ser Phe Gln His Leu Leu Arg Gly Lys Val
 145 150 155 160
 Arg Phe Leu Met Leu Val Gly Gly Ser Thr Leu Cys Val Arg Arg Ala
 165 170 175
 Pro Pro Thr Thr Ala Val Pro Ser Arg Thr Ser Leu Val Leu Thr Leu
 180 185 190
 Asn Glu Leu Pro Asn Arg Thr Ser Gly Leu Leu Glu Thr Asn Phe Thr
 195 200 205
 Ala Ser Ala Arg Thr Thr Gly
 210 215

<210> 12
 <211> 193
 <212> PRT
 <213> Homo sapiens

<400> 12
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 Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu
 35 40 45
 Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu
 50 55 60
 Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg
 65 70 75 80
 Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu
 85 90 95
 Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu Val Asn Ser Ser
 100 105 110

Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly
 115 120 125

Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu
 130 135 140

Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile
 145 150 155 160

Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu
 165 170 175

Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp
 180 185 190

Arg

<210> 13
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 <213> Homo sapiens

<400> 13
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 1 5 10 15

Leu Ala Pro Thr Thr Thr Lys Glu Pro Thr Ser Thr Thr Ser Asp Lys
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 35 40 45

Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Gly
 50 55 60

Thr Ala Pro Thr Thr Leu Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys
 65 70 75 80

Pro Ala Pro Lys Glu Leu Ala Pro Thr Thr Thr Lys Gly Pro Thr Ser
 85 90 95

Thr Thr Ser Asp Lys Pro Ala Pro Thr Thr Pro Lys Glu Thr Ala Pro
 100 105 110

Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro
 115 120 125

Thr Thr Pro Glu Thr Pro Pro Pro Thr Thr Ser Glu Val Ser Thr Pro
 130 135 140

Thr Thr Thr Lys Glu Pro Thr Thr Ile His Lys Ser Pro Asp Glu Ser
 145 150 155 160

Thr Pro Glu Leu Ser Ala Glu Pro Thr Pro Lys Ala Leu Glu Asn Ser
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Pro Lys Glu Pro Gly Val Pro Thr Thr Lys Thr Pro Ala Ala Thr Lys
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Pro Glu Met Thr
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<210> 14

<211> 52

<212> PRT

<213> Homo sapiens

<400> 14

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 20 25 30

Glu Pro Cys Thr Gly Asp Val Gln Glu Glu Thr Glu Met Cys Asn Met
 35 40 45

Met Asp Pro Cys
 50